Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the present application:

1. (Withdrawn) A modified protein comprising an amino acid sequence having an amino acid analog substituted at a specific amino acid residue, wherein lysine and/or cysteine side chains are not modified.

2. (Withdrawn) The modified protein of claim 1, wherein the amino acid analog is a tyrosine analog.

3. (Withdrawn) The modified protein of claim 2, wherein the tyrosine analog is acetyl-tyrosine.

4. (Withdrawn) The modified protein of claim 1, wherein the amino acid analog does not affect a biological activity of the protein.

5. (Withdrawn) The modified protein of claim 1, further comprising a label bound to the amino acid analog.

6. (Withdrawn) A method for producing modified proteins comprising the steps of:

(a) synthesizing an amino acid analog, wherein the amino acid analog has selective reactivity; and

(b) incorporating the amino acid analog into a protein at a desired site, wherein the amino acid analog of the modified protein is capable of further modification.

7. (Withdrawn) The method of claim 6, wherein the further modification comprises the step of labeling the amino acid analog of the modified protein.

8. (Withdrawn) The method of claim 6, wherein the amino acid analog does not affect a biological activity of the protein.

9. (Withdrawn) A method for modifying proteins comprising:

(a) identifying a protein having lysine or cysteine residues;

(b) replacing an amino acid residue, other than lysine or cysteine, at specific site in the protein with an amino acid analog.

10. (Withdrawn) The method of claim 9, wherein the amino acid analog does not affect a biological activity of the protein.

11. (Withdrawn) The method of claim 9, further comprising labeling the amino acid analog in the protein; wherein the label does not affect the biological activity of the protein.

12. (Withdrawn) The method of claim 9, wherein the protein is a Tat peptide (amino acids 47-56) (SEQ ID NO:2).

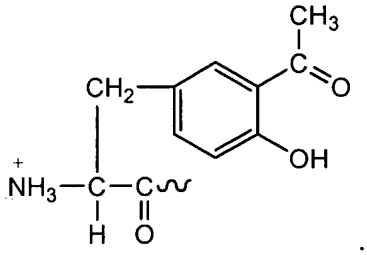
13. (Withdrawn) The method of claim 12, wherein the Tyr-47 of the Tat peptide is the amino acid that is replaced.

14. (Withdrawn) The method of claim 13, wherein the amino acid analog is 3-Acetyl-Tyrosine.

15. (Canceled)

16. (Previously presented) The method of claim 28, wherein the dye pair is fluorescein-rhodamine.

17. (Previously presented) The method of claim 28, wherein the site-specific modified protein is an Acetyl-Tyr-Tat peptide having the following sequence:
Xaa Gly Arg Lys Lys Arg Arg Gln Arg Arg (SEQ ID NO:3),
wherein Xaa is Acetyl-Tyr, which is represented by the following structure:



18. (Original) The method of claim 17, wherein the RNA is TAR RNA.

19. (Withdrawn) A method for labeling proteins, without modifying lysine and cysteine side chains, comprising the steps of:

(a) replacing an amino acid of the protein, other than lysine and cysteine, with an analog of the amino acid; wherein the analog of the amino acid does not affect a biological activity of the protein; and

(b) labeling the amino acid analog of the protein with a dye; wherein the incorporation of the dye does not affect the biological activity of the protein.

20. (Withdrawn) A labeled protein comprising an amino acid sequence containing a plurality of lysine and/or cysteine residues, an amino acid analog, and a label located at the amino acid analog, wherein the amino acid analog and the label do not affect a biological activity of the protein.

21. (Withdrawn) The labeled protein of claim 20, wherein the amino acid analog is Acetyl-Tyrosine.

22. (Withdrawn) A method for producing site-specific modified proteins comprising the steps of:

(a) synthesizing an Acetyl-Tyrosine;

(b) incorporating the Acetyl-Tyrosine into a protein at a desired site, wherein the Acetyl-Tyrosine does not alter a biological activity of the protein, and wherein the Acetyl-Tyrosine is capable of further modification.

23. (Withdrawn) The method of claim 22, wherein the further modification comprises the step of labeling the Acetyl-Tyrosine of the site-specific modified protein.

24. (Withdrawn) A Tat peptide comprising an Acetyl-Tyrosine substituted for Tyrosine-47 in the Tat peptide (SEQ ID NO:3), wherein lysine residues are not modified.

25. (Withdrawn) A labeled Tat peptide comprising a fluorescein-Acetyl-Tyrosine substituted for Tyrosine-47 in a Tat peptide.

26. (Withdrawn) A method for making the peptide of claim 24 comprising the steps of:

(a) synthesizing an acetyl-tyrosine; and

(b) synthesizing a Tat peptide, wherein the acetyl-tyrosine of step (a) is substituted for the Tyr-47 in the Tat peptide.

27. (Withdrawn) A method for making the peptide of claim 25 comprising the steps of:

(a) synthesizing an acetyl-tyrosine;

(b) synthesizing a Tat peptide, wherein the acetyl-tyrosine of step (a) is substituted for the Tyr-47 in the Tat peptide; and

(c) site specific labeling the acetyl-tyr-tat peptide at the location of the acetyl-tyr.

28. (Currently amended) A method for determining protein-RNA interactions under simulated physiological conditions, the method comprising:

(a) synthesizing a site specific modified protein, wherein the site specific modified protein comprises a protein modified by replacement of an amino acid, other than lysine or cysteine residues, with an analog of the amino acid, wherein the amino acid analog does not affect a biological activity of the protein;

(b) subsequently site-specifically labeling the site specific modified protein at the site of the amino acid analog with a ~~first fluorescent~~ donor dye molecule, wherein the site-specific labeling is capable of occurring in the absence of orthogonal protection of nucleophilic side chains of lysine and cysteine;

(c) providing a RNA molecule labeled with ~~a second fluorescent~~ an acceptor dye molecule, wherein the ~~second~~ acceptor dye molecule is capable of participating in fluorescence resonance energy transfer with the ~~first~~ donor dye molecule;

(d) measuring the emission of the labeled protein and labeled RNA in (b) and (c) respectively;

(e) combining the labeled RNA in (c) with the labeled protein in (b) to form a mixture;

(f) measuring the emission of the mixture in (e); and,

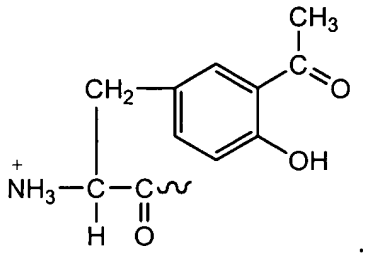
(g) determining the proximity between the ~~first~~ donor dye molecule and the ~~second~~ acceptor dye molecule.

29. (Previously presented) The method of claim 28, further comprising comparing the emission measurements from (d) and (f) to determine if fluorescence resonance energy transfer has occurred.

30. (Canceled)

31. (Previously presented) The method of claim 28, wherein the replaced amino acid is Tyrosine.

32. (Previously presented) The method of claim 31, wherein the amino acid analog has the following structure:



33. (Previously presented) The method of claim 28, wherein the protein is a Tat peptide represented by
SEQ ID NO:2.

34. (Canceled)

35. (Currently amended) The method of claim 28, wherein step (b) comprises conjugating the ~~first fluorescent~~ donor dye molecule to a functional group on the amino acid analog, which is selected from the group consisting of an acetyl group and a formyl group.

36. (Previously presented) The method of claim 28, further comprising examining fluorescence quenching of the labeled protein at different concentrations of labeled RNA.

37. (Previously presented) The method of claim 36, further comprising determining the binding affinity between the protein and the RNA.